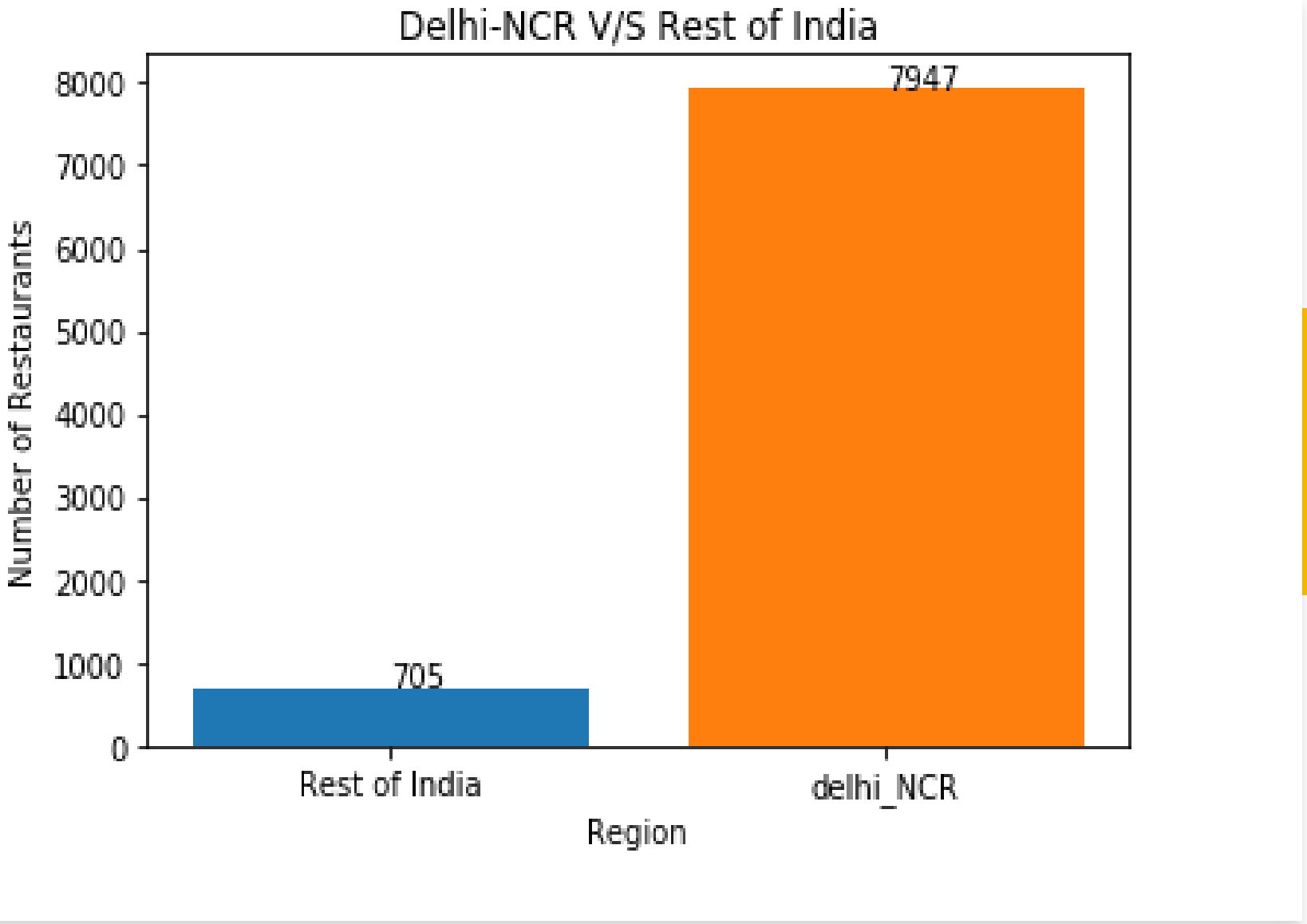
Project: Zomato API-II

<<Q-1>>

The dataset is highly skewed toward the cities included in Delhi-NCR. So, we will summarize all the other cities in Rest of India while those in New Delhi, Ghaziabad, Noida, Gurgaon, Faridabad to Delhi-NCR. Doing this would make our analysis turn toward Delhi-NCR v Rest of India.



<<1>>
Plot the bar graph of number of restaurants present in Delhi NCR vs Rest of India.

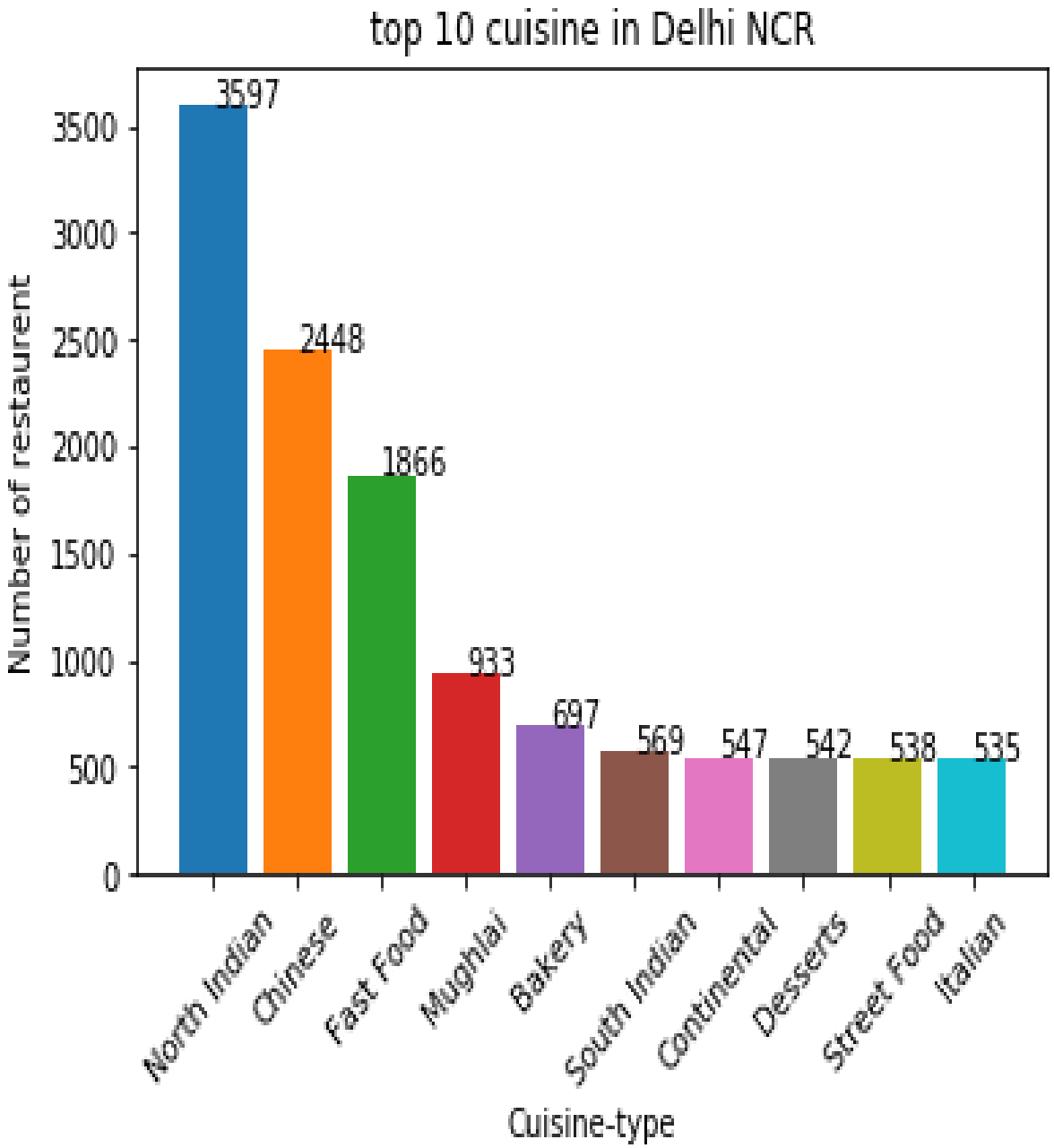
<<2>>

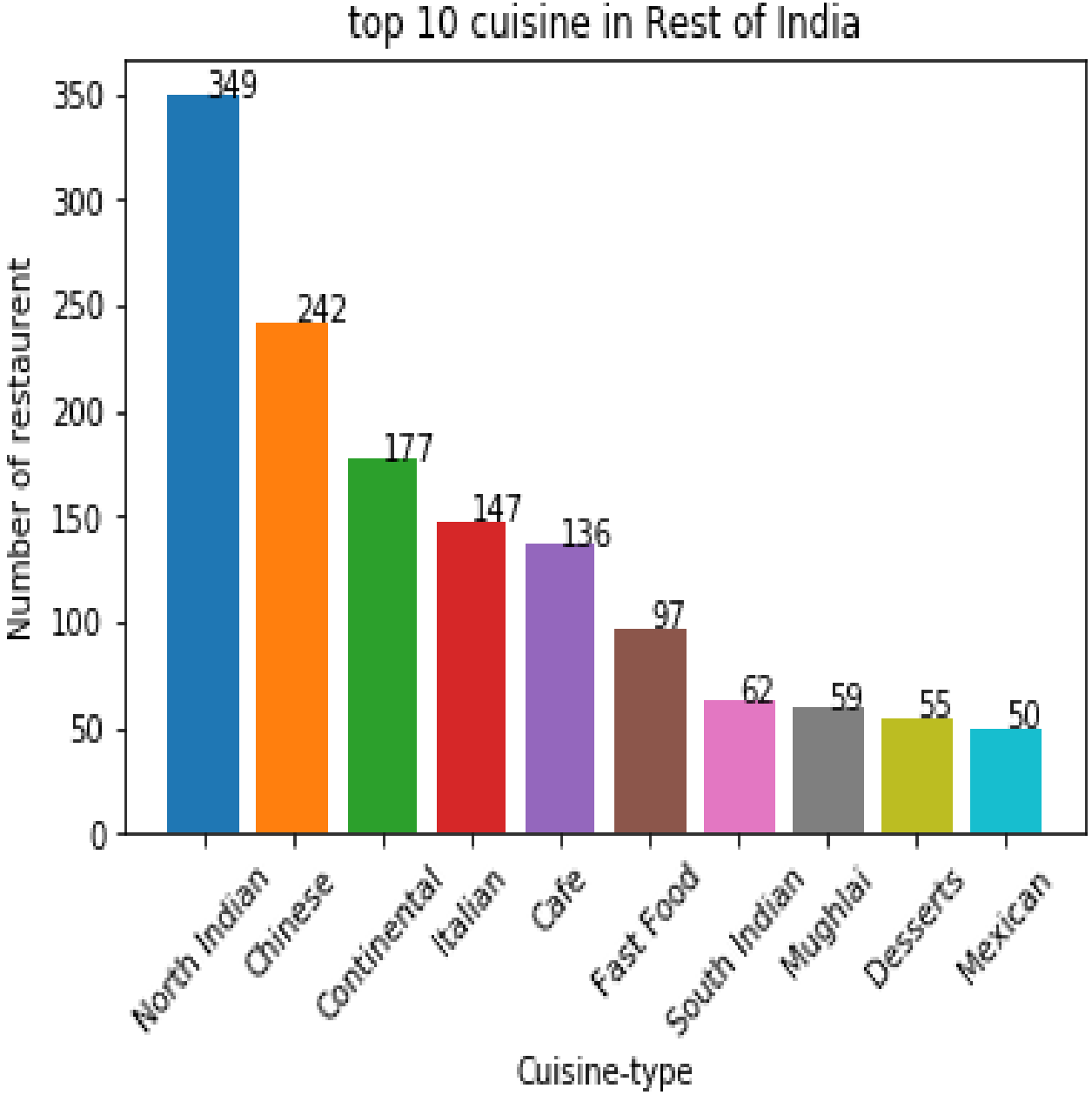
Find the cuisines which are not present in restaurant of Delhi NCR but present in rest of India. Check using Zomato API whether this cuisines are actually not served in restaurants of Delhi-NCR or just it due to incomplete dataset.

- So the answer according to our data is
- :- 'German' , 'Malwani' , 'BBQ' , 'Cajun'.
- But according to current Zomato API "Malwani" and "BBQ" cuisines are started in Delhi NCR

- Find the top 10 cuisines served by maximum number of restaurants in Delhi NCR and rest of India.

Cuisine in Delhi NCR	No. Of restaurants	Cuisine in Rest of India	No. Of restaurants
North Indian	3597	North Indian	349
Chinese	2488	Chinese	242
Fast Food	1866	Continental	177
Mughlai	933	Italian	147
Bakery	697	Cafe	136
South Indian	569	Fast Food	97
Continental	547	South Indian	62
Desserts	542	Mughlai	59
Street Food	538	Desserts	55
Italian	535	Mexican	50


top 10 cuisine in Delhi NCR
Number of restaurent
Cuisine-type
0
500
1000
1500
2000
2500
3000
3500
3597
2448
1866
933
697
569
547
542
538
535
North Indian
Chinese
Fast Food
Mughlai
Bakery
South Indian
Continental
Desserts
Street Food
Italian


top 10 cuisine in Rest of India
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0
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147
136
97
62
59
55
50
North Indian
Chinese
Continental
Italian
Cafe
Fast Food
South Indian
Mughlai
Desserts
Mexican

<<4>>

Write a short detailed analysis of how cuisine served is different from Delhi NCR to Rest of India. Plot the suitable graph to explain your inference.

- Cuisine served in Delhi NCR is not much different from rest of India as only "Cajun" and "German" are two cuisine which are not served in Delhi NCR rest all cuisine which is served in rest of India is served in Delhi NCR.
- However the trending cuisine or the cuisine served by most of the restaurant are similar , however "Cafe" which didn't make up in previous table of Delhi NCR is served by 491 restaurants however "Mexican" which seems to be favorites for rest of India is served by only 80 restaurants in Delhi NCR.
- Also "Street Food" and "Bakery" are two cuisines which many restaurants in Delhi NCR serves but that's not the case with rest of India.

<<Q-2>>

User Rating of a restaurant plays a crucial role in selecting a restaurant or ordering the food from the restaurant.

PART-1

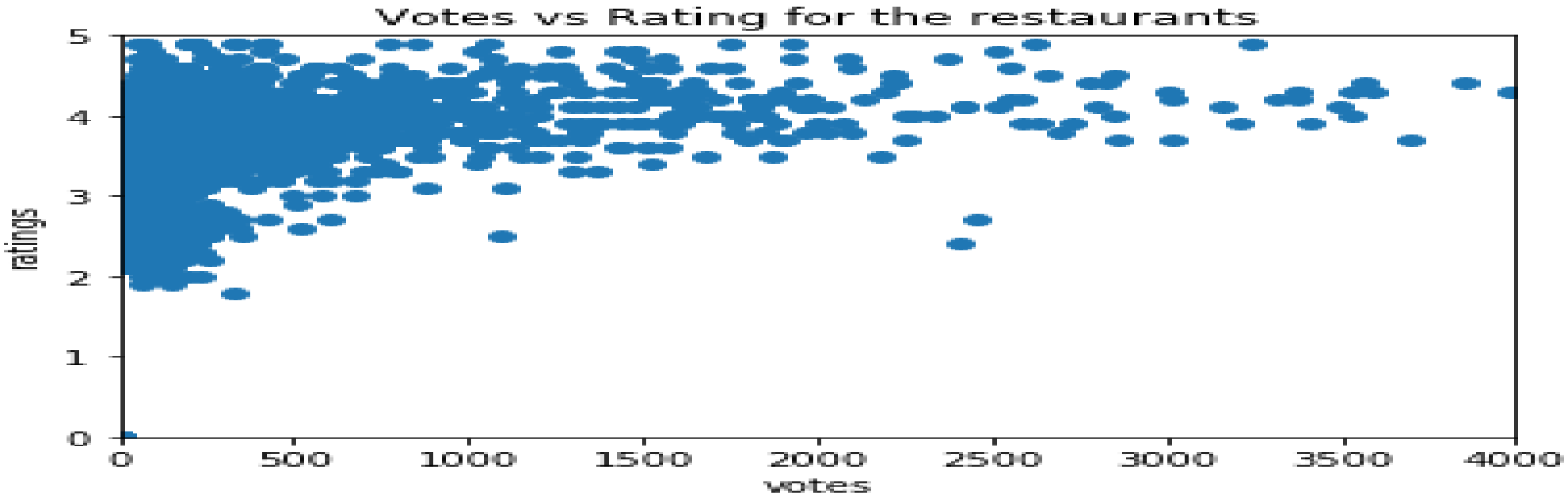
Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference.

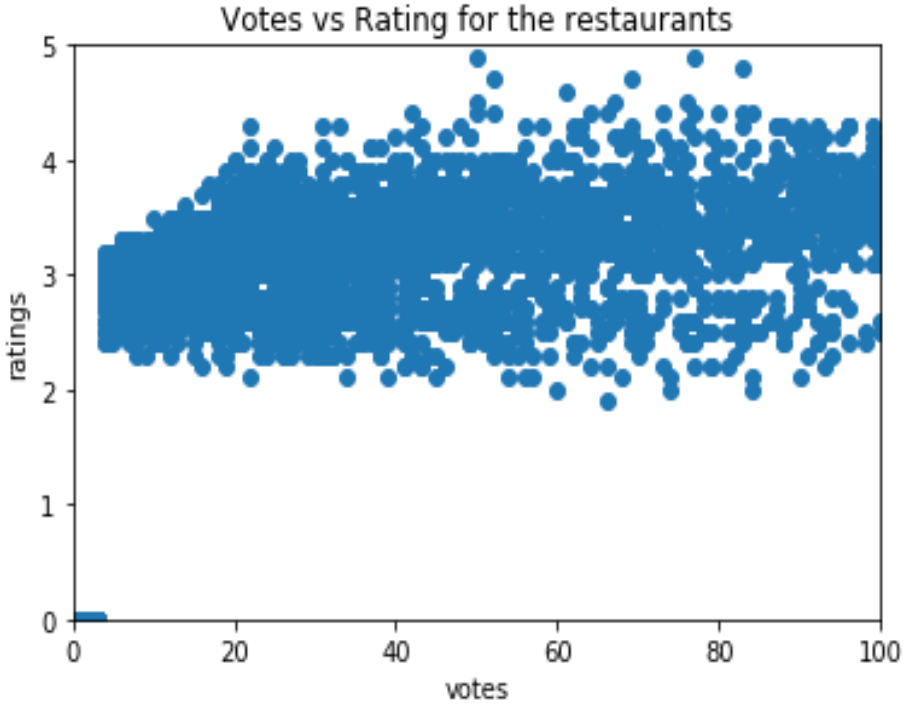
Number of Votes given Restaurant

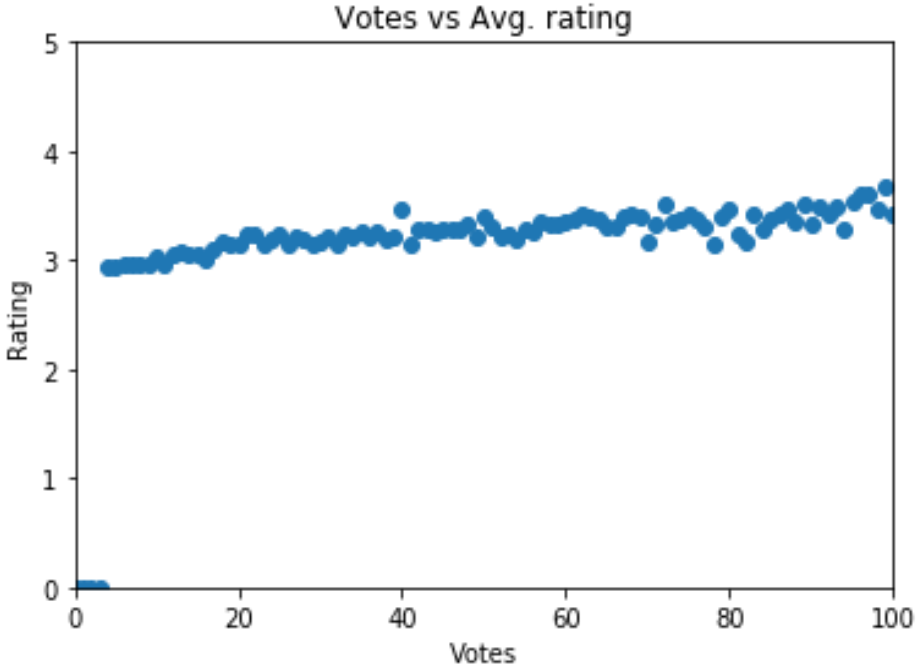
Our data set have **8652 Indian restaurants** out of which there are **75%** of restaurants which have votes **less than or equal to 100** so our analysis will be different for two category i.e. restaurants having votes less that 100 and votes greater than 100.

We can also see from the below graph which **Vote v/s rating for the restaurants** we'll not be able to figure out how's rating is varying with votes therefore to get a better insight we'll divide our task into two categories as discussed above.

```
Count  -  8652.000000
mean   -  137.212552
std    -  428.039513
min    -  0.000000
25%    -  4.000000
50%    -  24.000000
75%    -  100.000000
max    -  10934.000000
```







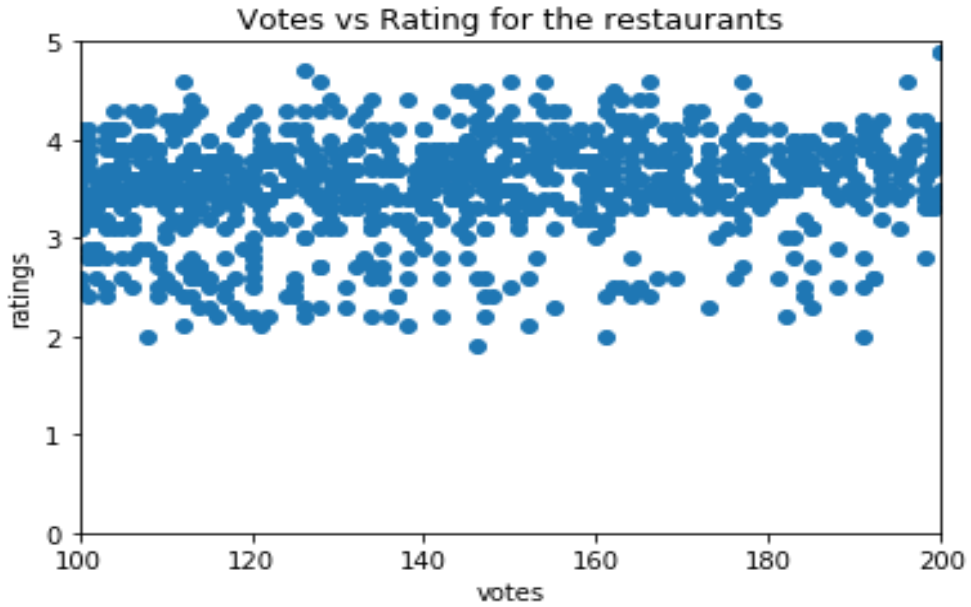
Variation of ratings for the restaurants having votes less than hundred.

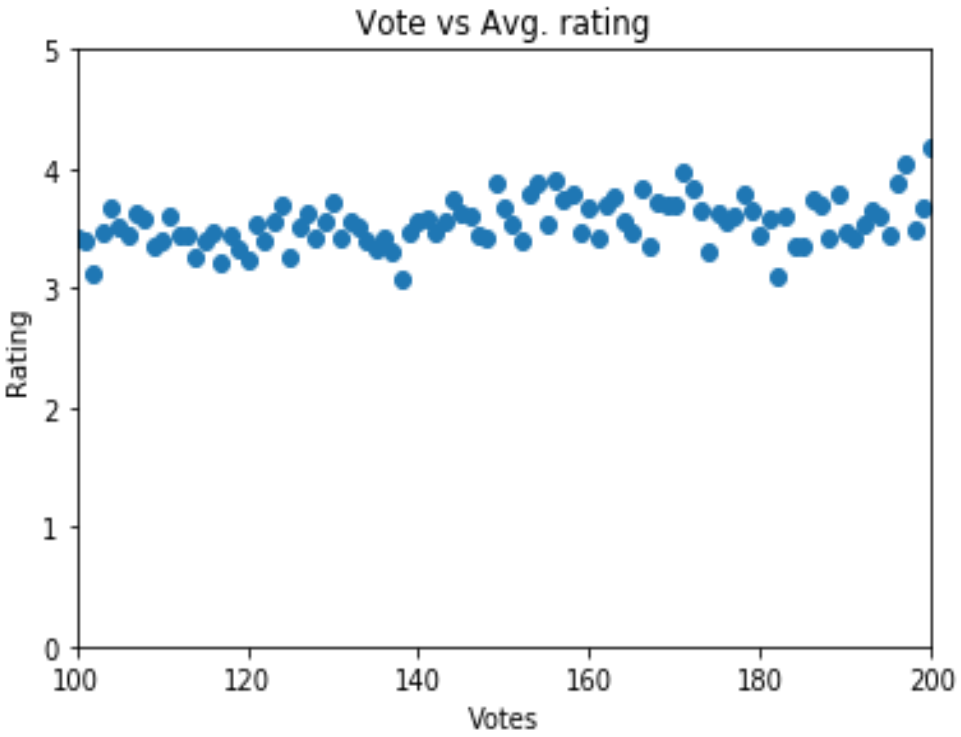
- Since 75% restaurant have got vote less than 100 means this data is for 6488 restaurants so there are many restaurants which has got different ratings for same number of votes therefore to predict how rating will vary with number of votes is very hard to say. We can also see that majority of restaurants have rating between 2-4.5

- If we look at the graph which shows average rating of restaurant for a particular value of vote as shown in second graph we can say that average rating is increasing very slowly from 3 to less than 4.

- But then too we can't say what will be the rating of a restaurant having vote less than 100 because bandwidth is large, for a particular value of votes the rating is between 2 - 4.5 as shown in first graph .

- Therefore if a restaurant has votes less than 100 we can't judge it on the basis of ratings because there are many restaurants which have rating 2 and many with 4.5.





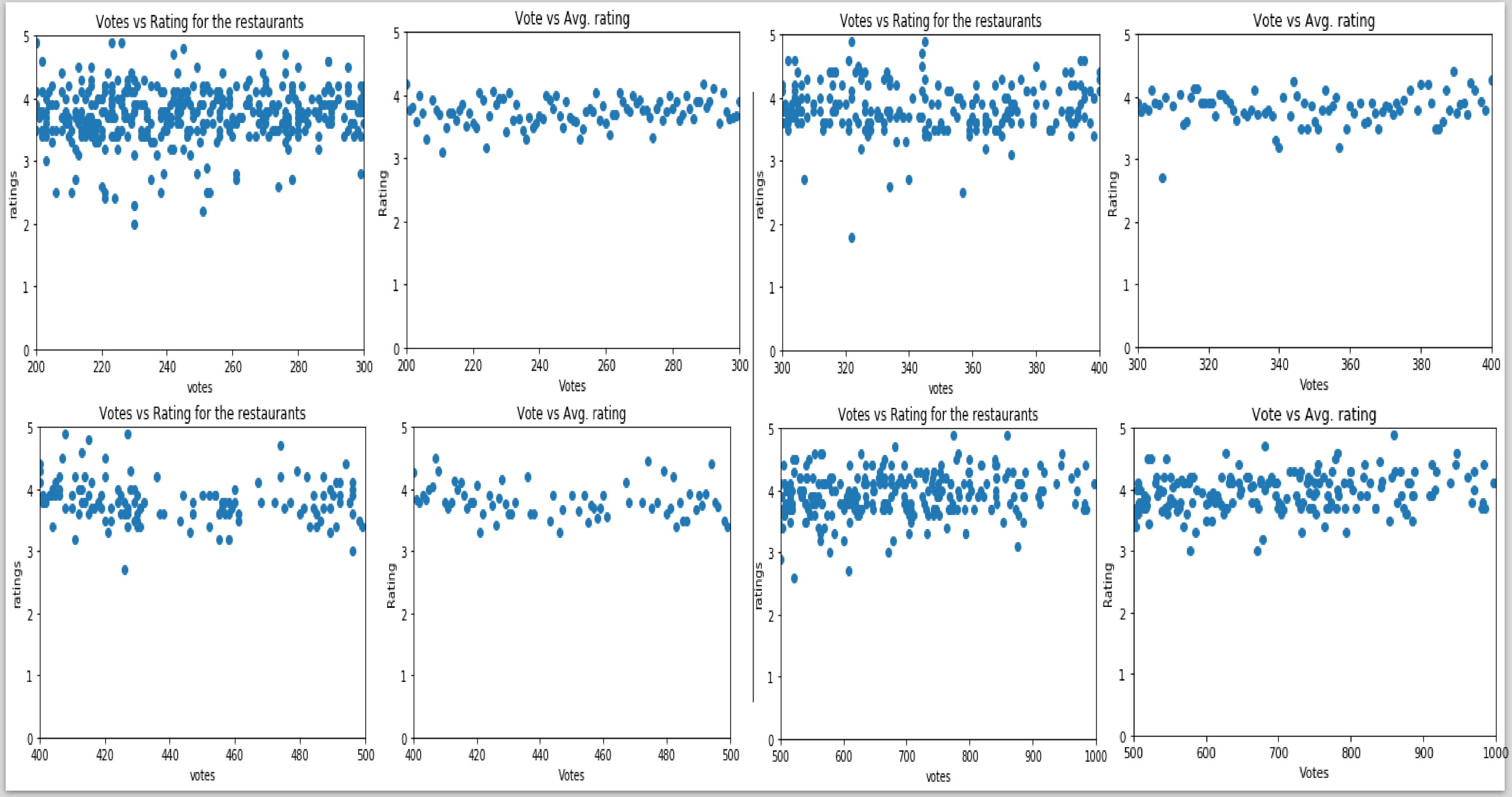
Variation of rating for the restaurants having votes greater than 100.

As we move further we see that now only 25% of total restaurants are left so now for a particular number of votes the corresponding number of restaurants having different rating is coming less which was not the case in earlier situation where number of votes were less than hundred .

And as we go further there will be only one corresponding restaurant for a particular value of votes as a result of which the two different graphs will look alike and we shall see that.

Therefore our analysis for the effect on rating because of votes will be strong.

Here in this case there's a density of restaurants having rating between 3-4 Which shows there's a high chance for a restaurant that if it gets the vote which lie in this category the rating will be in range (3-4).
But in previous case we can't make any prediction.

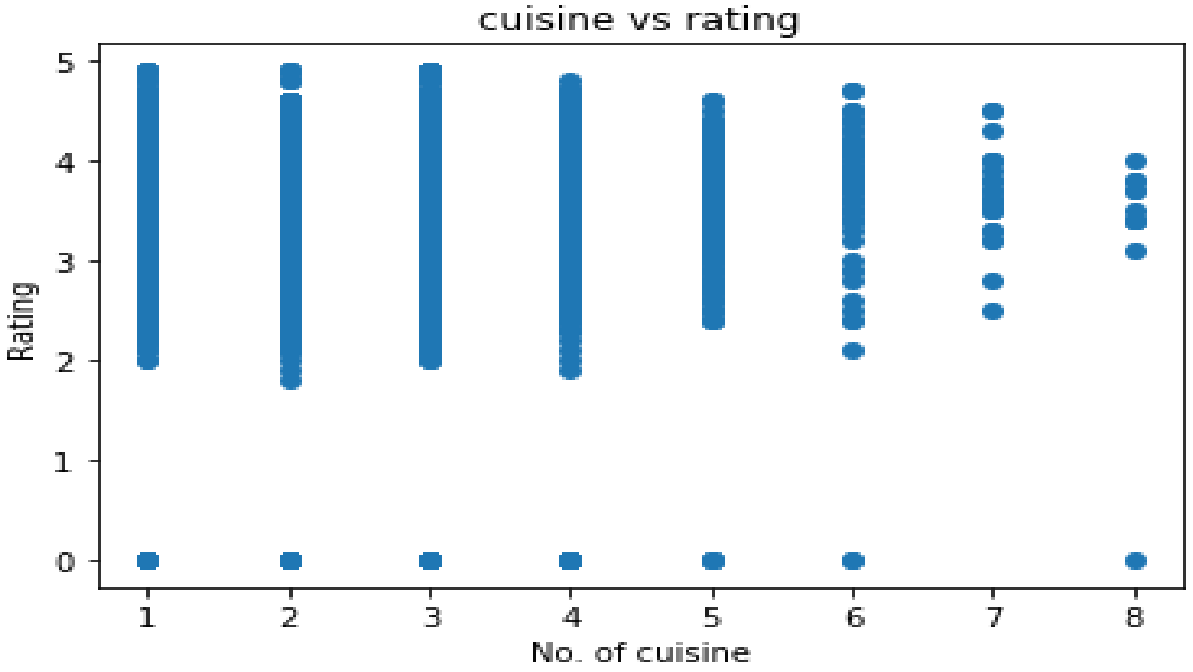

Votes vs Rating for the restaurants
ratings
votes
Vote vs Avg. rating
Rating
Votes
Votes vs Rating for the restaurants
ratings
votes
Vote vs Avg. rating
Rating
Votes
Votes vs Rating for the restaurants
ratings
votes
Vote vs Avg. rating
Rating
Votes
Votes vs Rating for the restaurants
ratings
votes
Vote vs Avg. rating
Rating
Votes

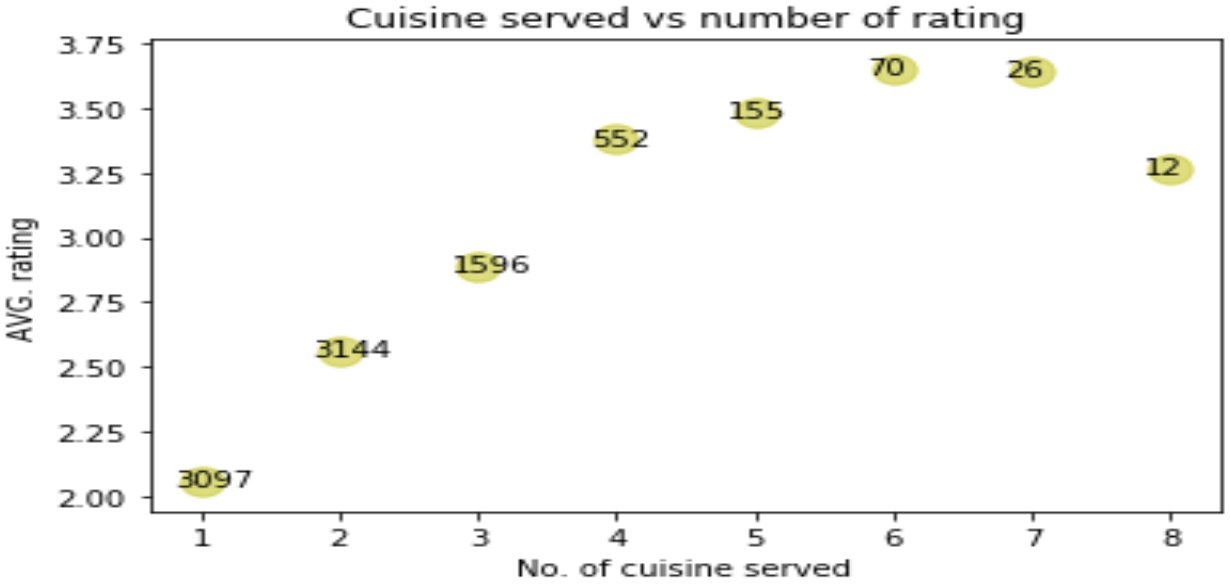
CONCLUSION TABLE

votes range	Rating Range	Average rating range
0-100	2 - 4.5	3 - 3.75
100-200	2.5 - 4	3 - 4
200-300	3 - 4.5	3.5 - 4
300-400	3.5 - 4.5	3.8 - 4.2
400-500	3.5 - 4.5	3.5 - 4.5
500-1000	3.5 - 4.5	3.5 - 4.5
1000-2000	3.5 - 5	3.5 - 5
2000-3000	4 - 5	4 - 5
3000-4000	4 - 5	4 - 5
4000-11000	4 - 5	4 - 5

<<2>

Restaurant serving more number of cuisines.





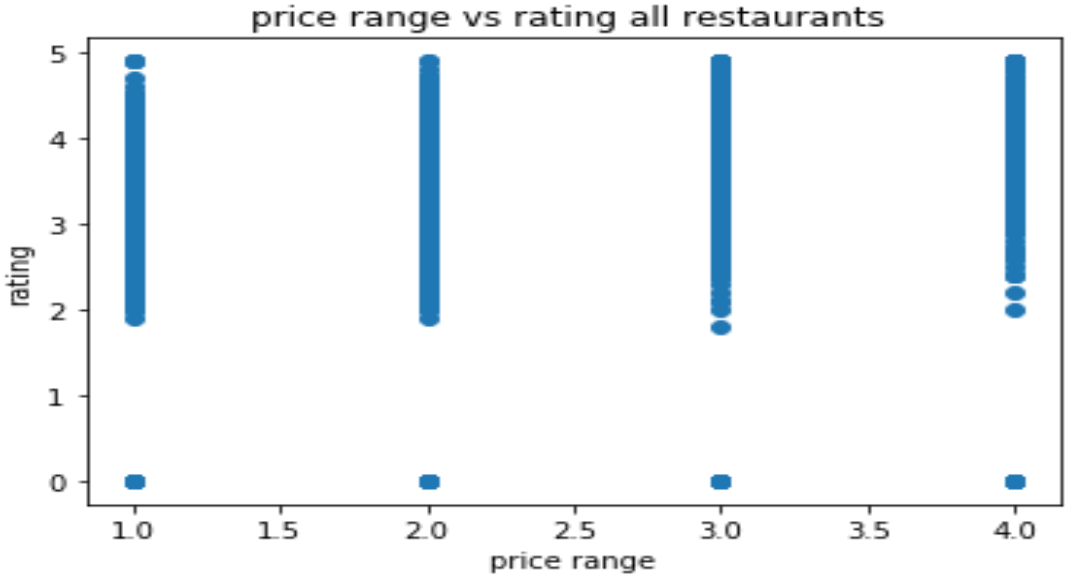
Here we are analyzing how the rating of a restaurant will vary with number of cuisine served.

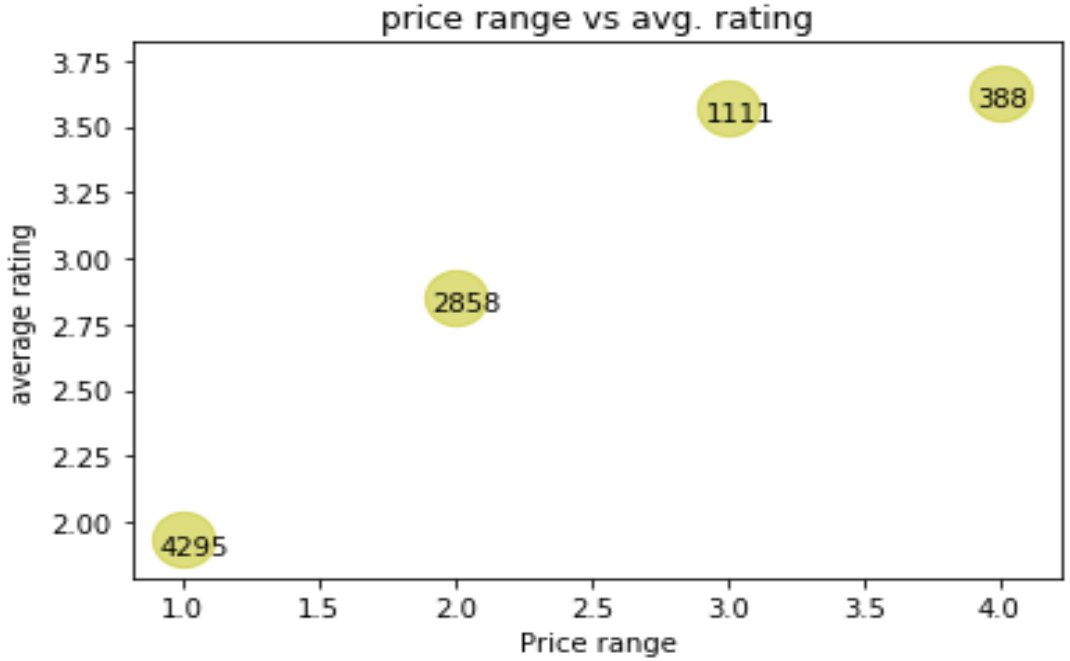
From the first plot we can say that there's no pattern in the graph as there are many restaurant serving any particular number cuisine with different ratings so to get a somewhat better insight we'll plot the average rating of the restaurants corresponding to particular number of cuisines served .

And we can see that as the number of cuisines served increases the average rating also increase as far as number of restaurants serving are considerably high.

<<3>>

Average Cost of Restaurant





Here we want to analyze how rating will vary with the price range of restaurant.

From the first graph we see that there are lot of restaurant having a particular price range but varying rating therefore to get a better insight we have another plot which is of price range versus average rating for a particular value of price range .
And we see that as the price range increases number of restaurants decreases but average rating increases.

The encircled number is the number of restaurants.

<<4>>

Restaurant serving some specific cuisines.

In this case we'll get the average ratting of the restaurants for each cuisine after that we'll find top 10 of those cuisines in which average rating of the resturants having that cuisine is maximum .

cuisine	Average rating of the restaurant serving corresponding cuisine
Persian	4.6
German	4.35
Modern Indian	4.28
Charcoal Grill	4.17
Parsi	4.1
Iranian	4.06
Steak	4.05
Burmese	4.05
Spanish	4.02
Indonesian	4.0

So these are the specific cuisines if the restaurant have them then there rating will be high.

PART - II

- Find the weighted restaurant rating of each locality and find out the top 10 localities with more weighted restaurant rating?
    - Weighted Restaurant Rating=Σ (number of votes * rating) / Σ (number of votes) .

- Top 10 localities with more weighted restaurant rating

LOCALITY	RATING
Aminabad	4.9
Friends Colony	4.88
Express Avenue Mall, Royapettah	4.8
JP Nagar	4.6
New BEL Road	4.6
Kilpauk	4.6
Gandhipuram	4.6
Arambol	4.6
Jakhan	4.30
Sector 9	4.15

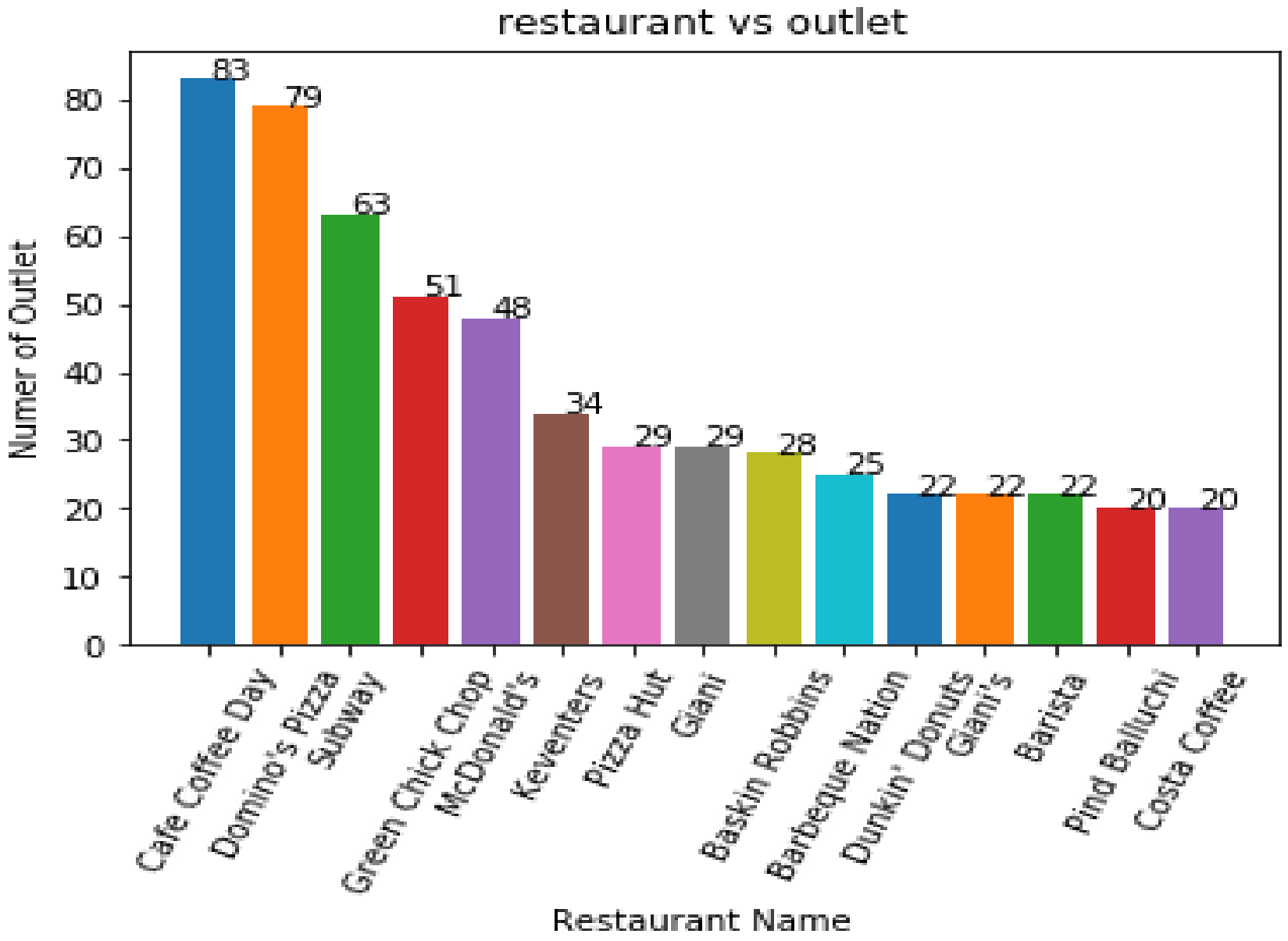
<<Q-3>>

VISUALIZATION

<<I>>

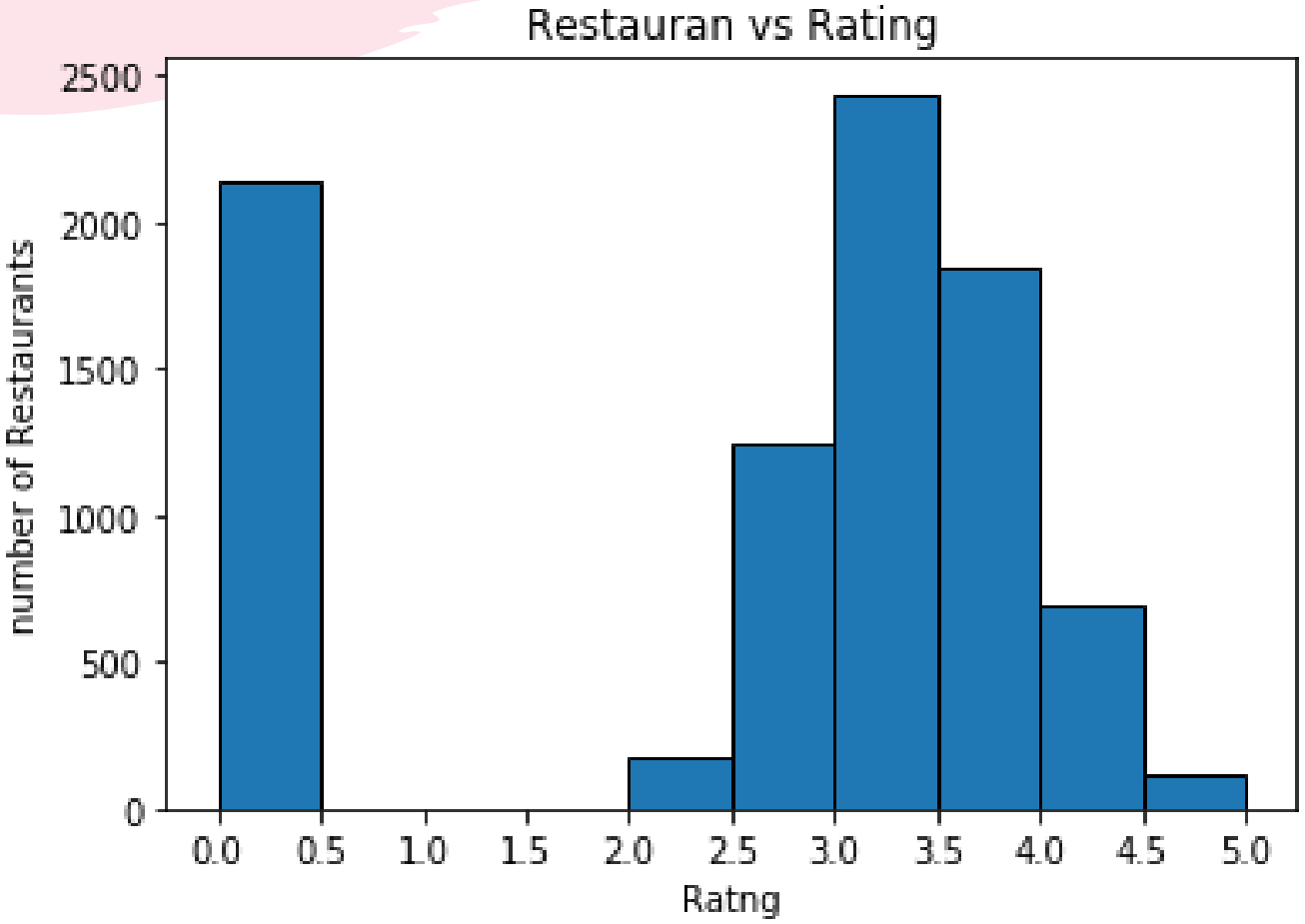
Plot the bar graph top 15 restaurants have a maximum number of outlets.

Restauran	Outlets
Cafe Coffee Day	83
Domino's Pizza	79
Subway	63
Green Chick Chop	51
McDonald's	48
Keventers	34
Pizza Hut	29
Giani	29
Baskin Robbins	28
Barbeque Nation	25
Dunkin' Donuts	22
Giani's	22
Barista	22
Pind Balluchi	20
Costa Coffee	20



<<2>>

Plot the histogram of aggregate rating of restaurant(drop the unrated restaurant)



We can see that there are many restaurants which have rating either in between

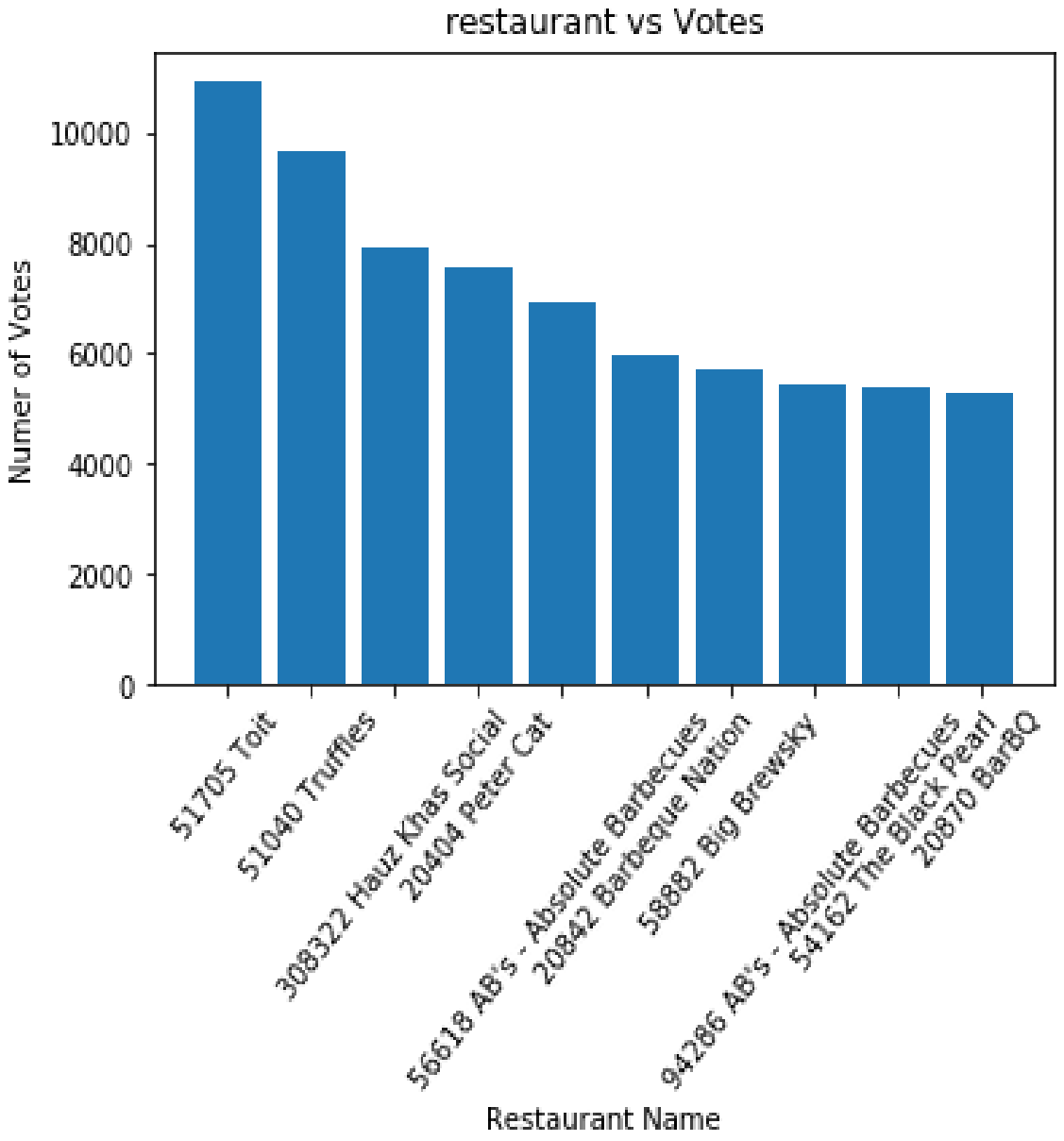
0.0 - 0.5 or

3.0 - 4.0

<<3>>

Plot the bar graph top 10 restaurants in the data with the highest number of votes.

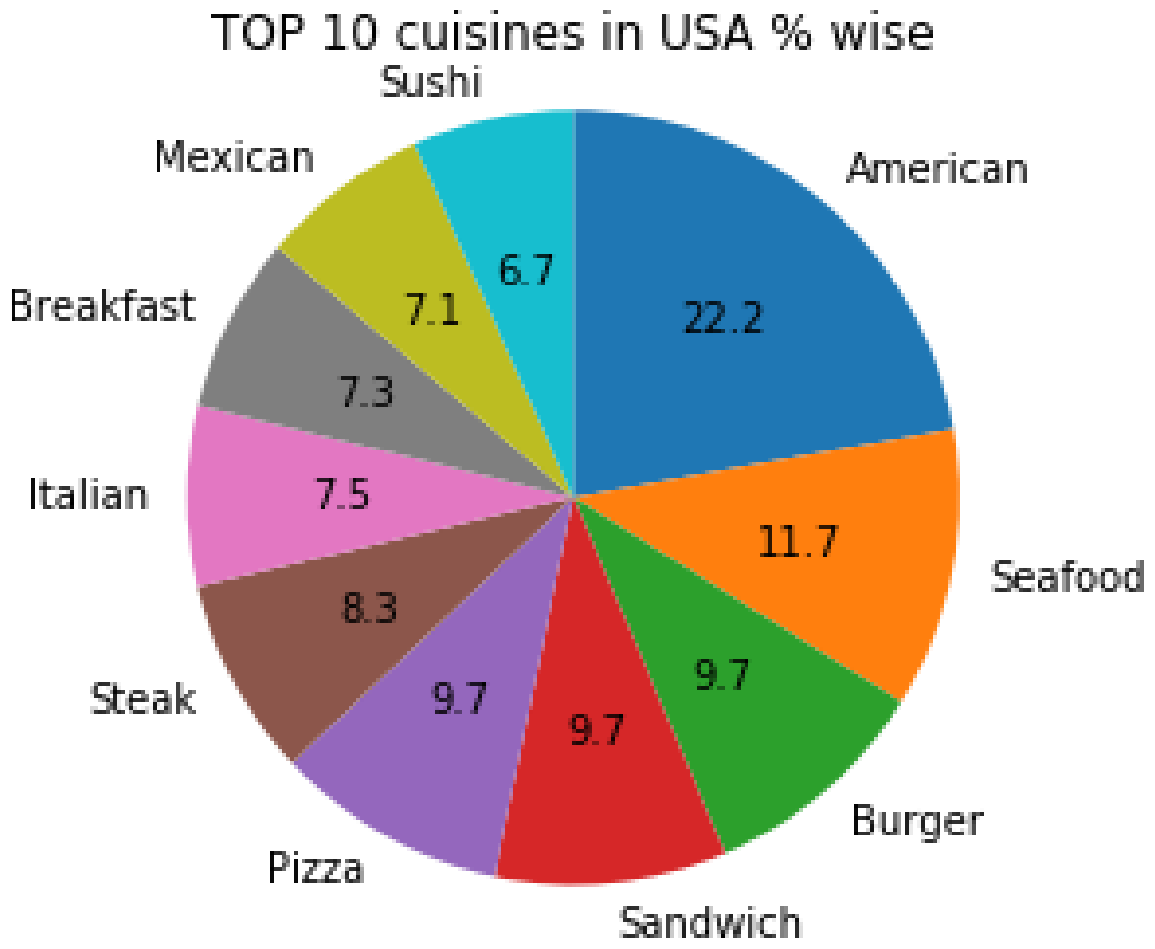
Restaurant ID	Restaurant Name	Votes
51705	Toit	10934
51040	Truffles	9667
308322	Hauz khas Social	7931
20404	Peter Cat	7574
56618	AB ' s – Absolute Barbecues	6907
20842	Barbeque Nation	5966
58882	Big Brewsky	5705
94268	AB ' s – Absolute Barbecues	5434
54162	THe Black Pearl	5385
20870	BarBQ	5288



<<4>>

Plot the pie graph of top 10 cuisines present in restaurants in the USA.

Cuisines	No. Of Restaurants
American	112
Seafood	59
Burger	49
Sandwich	49
Pizza	49
Steak	42
Italian	38
Breakfast	37
Mexican	36
Sushi	34



<<5>>

Plot the bubble graph of a number of Restaurants present in the city of India and keeping the weighted restaurant rating of the city in a bubble.